Carbon Film Fixed Resistor

multicomp

RoHS Compliant

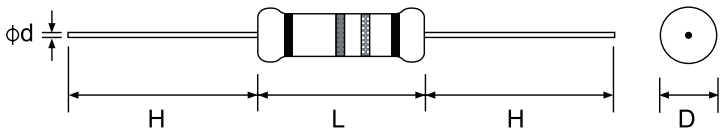
Features

- Automatically insertable
- High quality performance
- Non-Flame type available
- Cost effective and commonly used
- Too low or too high values can be supplied on case to case basis

Performance Specification

Temperature Coefficient	: ≤10Ω : ±350PPM/°C 11Ω to 99kΩ : 0 to -450PPM/°C 100kΩ to 1MΩ : 0 to -700PPM/°C 1.1MΩ to 10MΩ : 0 to -1500PPM/°C
Short Time Overload	: ±(1% +0.05Ω)Max. with no evidence of mechanical damage
Insulation Resistance	: Min. 1,000MΩ
Dielectric Withstanding Voltage	: No evidence of flashover, mechanical damage, arcing or insulation breakdown.
Terminal Strength	: No evidence of mechanical damage.
Resistance to Soldering Heat	: ±(1% +0.05Ω)Max. with no evidence of mechanical damage.
Solderability	: Min. 95% coverage
Resistance to Solvent	: No deterioration of protective coating and markings
Temperature Cycling	: ±(1% +0.05Ω) Max. with no evidence of mechanical damage
Load Life in Humidity	: Normal Type : <100kΩ : ±(3% +0.05Ω)Max. ≥100kΩ : ±(5% +0.05Ω)Max. Non-Flame Type : <100kΩ : ±(5% +0.05Ω)Max. ≥100kΩ : ±(10% +0.05Ω)Max.
Load Life	: Normal Type : <56kΩ : ±(2% +0.05Ω)Max. ≥56kΩ : ±(3% +0.05Ω)Max. Non-Flame Type : <100kΩ : ±(5% +0.05Ω)Max. ≥100kΩ : ±(10% +0.05Ω)Max.

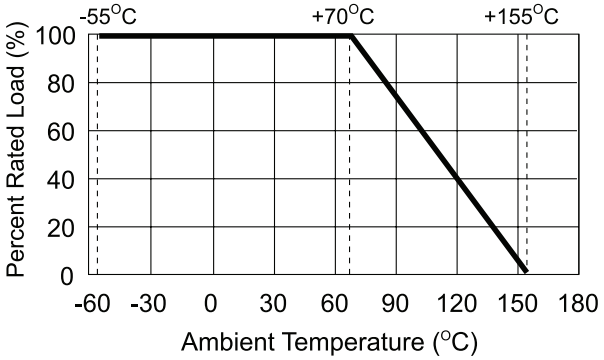
Dimension



Part Number	Power Rating at 70°C	Dimension (mm)					Resistance Range	Max. Working Voltage	Max. Overload Voltage	Dielectric Withstanding Voltage
		D Max.	L Max.	H ±3	d ±0.05	PT				
MCCFR0W8	1/8W (0.125W)	1.85	3.5	28	0.45	52	1Ω to 1MΩ	200	400	400

Note:
Standard beige base colour
Ohmic values outside the standard range available on a case to case basis

Derating Curve



Characteristics

Characteristics	Limits	Test Methods (JIS C 5201-1)
DC resistance	Must be within the specified tolerance	The limit of error of measuring apparatus shall not exceed allowable range or 5% of resistance tolerance
Temperature coefficient	**Resistance Range** / **TCR (PPM/°C)** ≤10Ω / 0 to ±350 11Ω to 99K / 0 to -450 100K to 1M / 0 to -700 1.1M to 10M / 0 to -1500	Natural resistance change per temperature degree centigrade. $\frac{R_2-R_1}{R_1(t_2-t_1)} \times 10^6$ (PPM/°C R_1: Resistance value at room temperature (t_1) R_2: Resistance value at room temperature plus 100°C (t_2)
Short time overload	Resistance change rate is ±(1 % + 0.05Ω) max. with no evidence of mechanical damage	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds
Insulation resistance	Insulation resistance is 10,000MΩ Minimum.	Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at DC potential
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential
Terminal strength	No evidence of mechanical damage	**Direct load:** Resistance to a 2.5kg direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads. **Twist test:** Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating direction for a total of 3 rotations
Resistance to soldering heat	Resistance change rate is ±(1% + 0.05Ω) maximum with no evidence of mechanical damage	Permanent resistance change when leads immersed to 3.2 to 4.8mm from the body in 350°C ±10°C solder for 3 ±0.5 seconds
Solderability	95% coverage minimum	The area covered with a new, smooth clean, shiny and continuous surface free from concentrated pinholes. Test temperature of solder : 245°C ±3°C Dwell time in solder : 2 to 3 seconds

<table>
<tr><th>Characteristics</th><th>Limits</th><th>Test Methods (JIS C 5201-1)</th></tr>
<tr><td>Temperature cycling</td><td>Resistance change rate is ±(1% + 0.05Ω) max. with no evidence of mechanical damage</td><td>Resistance change after continuous 5 cycles for duty shown below:
<table>
<tr><th>Step</th><th>Temperature</th><th>Time</th></tr>
<tr><td>1</td><td>-55°C ±3°C</td><td>30 minutes</td></tr>
<tr><td>2</td><td>Room temperature</td><td>10 to 15 minutes</td></tr>
<tr><td>3</td><td>+155°C ±2°C</td><td>30 minutes</td></tr>
<tr><td>4</td><td>Room temperature</td><td>10 to 15 minutes</td></tr>
</table></td></tr>
<tr><td>Load life in humidity</td><td>
<table>
<tr><th colspan="2">Resistance value</th><th>ΔR/R</th></tr>
<tr><td rowspan="2">Normal Type</td><td rowspan="2"><100kΩ</td><td>±3%</td></tr>
<tr><td>±5%</td></tr>
</table></td><td>Resistance change after 1000 hours operating at RCWV with duty cycle of (1.5 hours “ON”, 0.5 hour “OFF”) in a humidity test chamber controlled at 40°C ±2°C and 90 to 95% relative humidity</td></tr>
<tr><td>Load life</td><td>
<table>
<tr><th colspan="2">Resistance value</th><th>ΔR/R</th></tr>
<tr><td rowspan="2">Normal Type</td><td rowspan="2"><56KΩ</td><td>±2%</td></tr>
<tr><td>±3%</td></tr>
</table></td><td>Permanent resistance change after 1000 hours operating at RCWV with duty cycle of (1.5 hours “ON”, 0.5 hour “OFF”) at 70°C ±2°C ambient</td></tr>
<tr><td colspan="3">RCWV = Rated continuous working Voltage = $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$</td></tr>
</table>

Part Number Table

Description	Resistance	Part Number
Carbon Film Fixed Resistor	2.2Ω	MCCFR0W8J022JA20
Carbon Film Fixed Resistor	3.3Ω	MCCFR0W8J033JA20
Carbon Film Fixed Resistor	3.9Ω	MCCFR0W8J039JA20
Carbon Film Fixed Resistor	4.7Ω	MCCFR0W8J047JA20
Carbon Film Fixed Resistor	5.6Ω	MCCFR0W8J056JA20
Carbon Film Fixed Resistor	6.8Ω	MCCFR0W8J068JA20
Carbon Film Fixed Resistor	8.2Ω	MCCFR0W8J082JA20
Carbon Film Fixed Resistor	10Ω	MCCFR0W8J0100A20
Carbon Film Fixed Resistor	12Ω	MCCFR0W8J0120A20
Carbon Film Fixed Resistor	15Ω	MCCFR0W8J0150A20
Carbon Film Fixed Resistor	18Ω	MCCFR0W8J0180A20
Carbon Film Fixed Resistor	22Ω	MCCFR0W8J0220A20
Carbon Film Fixed Resistor	27Ω	MCCFR0W8J0270A20
Carbon Film Fixed Resistor	33Ω	MCCFR0W8J0330A20
Carbon Film Fixed Resistor	39Ω	MCCFR0W8J0390A20
Carbon Film Fixed Resistor	47Ω	MCCFR0W8J0470A20
Carbon Film Fixed Resistor	56Ω	MCCFR0W8J0560A20

Carbon Film Fixed Resistor

Description	Resistance	Part Number
Carbon Film Fixed Resistor	68Ω	MCCFR0W8J0680A20
Carbon Film Fixed Resistor	82Ω	MCCFR0W8J0820A20
Carbon Film Fixed Resistor	100Ω	MCCFR0W8J0101A20
Carbon Film Fixed Resistor	120Ω	MCCFR0W8J0121A20
Carbon Film Fixed Resistor	150Ω	MCCFR0W8J0151A20
Carbon Film Fixed Resistor	180Ω	MCCFR0W8J0181A20
Carbon Film Fixed Resistor	220Ω	MCCFR0W8J0221A20
Carbon Film Fixed Resistor	270Ω	MCCFR0W8J0271A20
Carbon Film Fixed Resistor	330Ω	MCCFR0W8J0331A20
Carbon Film Fixed Resistor	390Ω	MCCFR0W8J0391A20
Carbon Film Fixed Resistor	470Ω	MCCFR0W8J0471A20
Carbon Film Fixed Resistor	560Ω	MCCFR0W8J0561A20
Carbon Film Fixed Resistor	680Ω	MCCFR0W8J0681A20
Carbon Film Fixed Resistor	820Ω	MCCFR0W8J0821A20
Carbon Film Fixed Resistor	1kΩ	MCCFR0W8J0102A20
Carbon Film Fixed Resistor	1.5kΩ	MCCFR0W8J0152A20
Carbon Film Fixed Resistor	3.3kΩ	MCCFR0W8J0332A20
Carbon Film Fixed Resistor	4.7kΩ	MCCFR0W8J0472A20
Carbon Film Fixed Resistor	10kΩ	MCCFR0W8J0103A20
Carbon Film Fixed Resistor	12kΩ	MCCFR0W8J0123A20
Carbon Film Fixed Resistor	15kΩ	MCCFR0W8J0153A20
Carbon Film Fixed Resistor	18kΩ	MCCFR0W8J0183A20
Carbon Film Fixed Resistor	22kΩ	MCCFR0W8J0223A20
Carbon Film Fixed Resistor	27kΩ	MCCFR0W8J0273A20
Carbon Film Fixed Resistor	33kΩ	MCCFR0W8J0333A20
Carbon Film Fixed Resistor	39kΩ	MCCFR0W8J0393A20
Carbon Film Fixed Resistor	47kΩ	MCCFR0W8J0473A20
Carbon Film Fixed Resistor	56kΩ	MCCFR0W8J0563A20
Carbon Film Fixed Resistor	68kΩ	MCCFR0W8J0683A20
Carbon Film Fixed Resistor	82kΩ	MCCFR0W8J0823A20
Carbon Film Fixed Resistor	100kΩ	MCCFR0W8J0104A20
Carbon Film Fixed Resistor	120kΩ	MCCFR0W8J0124A20
Carbon Film Fixed Resistor	150kΩ	MCCFR0W8J0154A20
Carbon Film Fixed Resistor	180kΩ	MCCFR0W8J0184A20

Description	Resistance	Part Number
Carbon Film Fixed Resistor	220kΩ	MCCFR0W8J0224A20
Carbon Film Fixed Resistor	270kΩ	MCCFR0W8J0274A20
Carbon Film Fixed Resistor	330kΩ	MCCFR0W8J0334A20
Carbon Film Fixed Resistor	390kΩ	MCCFR0W8J0394A20
Carbon Film Fixed Resistor	470kΩ	MCCFR0W8J0474A20
Carbon Film Fixed Resistor	680kΩ	MCCFR0W8J0684A20
Carbon Film Fixed Resistor	820kΩ	MCCFR0W8J0824A20
Carbon Film Fixed Resistor	1MΩ	MCCFR0W8J0105A20